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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/756,427	01/14/2004	Petteri Poyhonen	60279.00078	2678

32294 7590 01/22/2008

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EXAMINER	
SHIN, KYUNG H	

ART UNIT	PAPER NUMBER
2143	

MAIL DATE	DELIVERY MODE
01/22/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/756,427	POYHONEN ET AL.	
	Examiner	Art Unit	
	Kyung H. Shin	2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 November 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1, 2, 4, 6 - 14, 16 - 19, 21 - 35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 2, 4, 6 - 14, 16 - 19, 21 - 35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This action is responding to application papers filed on **1-14-2004**.

2. Claims **1, 2, 4, 6 - 14, 16 - 19, 21 - 35** are pending. Claims **23 - 35** are new. Claims **3, 5, 15, 20** have been cancelled. Claims **1, 19, 34, 35** are independent.

Response to Arguments

3. Applicant's arguments filed 11/2/2007 have been fully considered but they are moot due to new grounds of rejection with **McCanne** (US Patent No. **6,611,872**: hereafter named "**McCanne2**").

Responses Based on Previous Grounds of Rejection:

3.1 Applicant argues that the referenced prior art does not disclose, "a server providing a service", (see Remarks Page 16); "load balancing functionality is achieved by the functionality of the server farm servers rather than in the router functionality", (see Remarks Page 16).

Applicant's invention discloses that load balancing is accomplished utilizing anycast (IPv6 protocol) addressing techniques and advertisement (neighbour) messaging from the server systems. (see specification Page 4, Lines 33-35; Page 5, Lines 3-6) **McCanne (6,415,323)** discloses that the load balance function is performed using these actions which are performed by server systems with the "redirector system"

operational in the background and disclosed within the referenced prior art. McCanne discloses that the server systems utilize advertisement message(s) to advertise the availability of capacity and reachability information for a service whereby a server can process a service request as per claim limitation. (see McCanne **(6,415,323)** col. 7, lines 34-40; col. 8, lines 14-23)

McCanne discloses equivalent functions as the Applicant's claimed invention. The server systems manage and control the management of services provided by the server systems. The management of service and load balancing uses advertisement messaging. The load balancing distributed system uses anycast addressing techniques.

3.2 Applicant argues that the referenced prior art does not disclose, "dependent claims", (see Remarks Page 18).

Arguments for dependent claims are based upon above arguments for independent claims 1, 19. The successful responses to arguments for independent claims 1, 19, also successfully respond to the current arguments against the dependent claims 1 - 2, 4, 6 - 14, 16 - 18, 20 - 22.

3.3 The examiner has considered the applicant's remarks concerning a method of network layer load balancing for a server farm (group of servers located on the same link) that provide identical, transaction and UDP based services, e.g. DNS service. Load balancing functionality is based on the use of the IPv6 anycast addressing for the

service queries and specific Neighbour Advertisement messaging. Applicant's arguments have thus been fully analyzed and considered but they are not persuasive.

After an additional analysis of the applicant's invention, remarks, and a search of the available prior art, it was determined that the current set of prior art consisting of McCanne (6,415,323) and McCanne (6,611,872) discloses the applicant's invention including disclosures in Remarks dated November 2, 2007.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims **1, 2, 4, 6 - 14, 16 - 19, 21 - 35** are rejected under 35 U.S.C. 103 (a) as being unpatentable over **McCanne et al.** (US Patent No. **6,415,323**) in view of **McCanne** (US Patent No. **6,611,872**: hereafter named **"McCanne2"**).

Regarding Claim 1, McCanne discloses a method comprising:

a) providing a service with a service process in a server; (see McCanne col. 3, lines 45-54; col. 19, lines 27-34: servers providing services)

b) configuring a service-specific anycast address to a server interface on a communication link via which the server receives messages from a router or other servers; (see McCanne col. 4, lines 59-66: network layer load balance,

services providing; col. 5, lines 21-25; col. 5, lines 58-60: anycast communications protocol (IPv6); col. 5, lines 7-10: server farm (cluster), process services based on load; col. 3, lines 45-54: servers provides messaging between servers)

c) monitoring the service process and the service-specific anycast address configured interface; (see McCanne col. 6, lines 8-10; col. 6, lines 25-26; col. 12, lines 9-15: monitoring service processing of services)

e) sending an advertisement message when the service process is able to provide the service via the communication link to all other servers in response to the scheduling. (see McCanne col. 7, lines 34-40: server advertisement, available service(s))

McCanne discloses the need for an advertisement message, wherein configured to take advertisement messages received to the service-specific anycast address from other servers into account in determining the need for an advertisement message. (see McCanne col. 7, lines 34-40: advertisement message(s) from server) McCanne does not specifically disclose scheduling the service process.

However, McCanne2 discloses:

d) scheduling the service process; (see McCanne2 col. 13, lines 59-62: client request; col. 16, lines 22-27: service request scheduling)

It would have been obvious to one of ordinary skill in the art to modify McCanne as taught by McCanne2 to enable the capability for scheduling service processes.

One of ordinary skill in the art would have been motivated to employ the teachings of McCanne2 in order to enable the capability to provide flexible bandwidth management and diagnostic tools to network managers and make use of existing, widely deployed communication protocols and procedures to achieve efficient transfer of information. (see McCanne2 col. 2, lines 27-36: " ... *Such a system should enhance existing digital audio/video/media applications and enable them to work more effectively at large scale and across heterogeneous environments. The system should provide flexible bandwidth management and diagnostic tools to network managers such as by providing localized control over traffic and content of multicast data. The system should make use of existing, widely deployed communication protocols and procedures to achieve efficient transfer of information....* ")

Regarding Claims 2, 23, McCanne discloses the method, apparatus according to claims 1, 19, where the sending of the advertisement message is activated by a solicitation message from the router. (see McCanne col. 7, lines 34-40: routing information (advertisement) transfer from router to server)

Regarding Claims 4, 24, McCanne discloses the method, apparatus according to claims 2, 19, wherein neighbor discovery protocol is used, wherein said solicitation message is a neighbor solicitation message and said advertisement message is an unsolicited neighbor advertisement message wherein an override flag is set. (see

McCanne col. 18, lines 19-24: neighbor discovery protocol; col. 9, lines 33-42; col. 9, line 61 - col. 10, line 2: service discovery utilizing DNS naming convention); col. 7, lines 34-40; col. 8, lines 14-23: advertisement messaging to manage load balancing and service requests)

Regarding Claims 6, 25, McCanne discloses the method, apparatus according to claims 1, 19, further comprising: delaying the sending of a new advertisement message. (see McCanne col. 7, lines 49-52: stop sending packets, server to router)

Regarding Claims 7, 26, McCanne discloses the method, apparatus according to claims 1, wherein if the server receives less than a predefined number of service queries in a predefined time interval, the method further comprises: stopping the sending of the advertisement messages; and switching to a standby mode. (see McCanne col. 7, lines 49-52: advertisement message(s) stopped)

Regarding Claims 8, 27, McCanne discloses the method, apparatus according to claims 7, 26, wherein if the server being in the standby mode receives a solicitation message, the sending of the advertisement messages continues. (see McCanne col. 7, lines 34-40: send advertisement message(s))

Regarding Claims 9, 28, McCanne discloses the method, apparatus according to claims 1, 19, wherein when the service process in a server stops, sending of the

advertisement messages is stopped. (see McCanne col. 7, lines 49-52: service stops, advertisement stops)

Regarding Claims 10, 29, McCanne discloses the method, apparatus according to claims 1, 19, wherein Open Shortest Path First version 6 protocol is used in communication between the router and the servers. (see McCanne col. 5, lines 21-25: col. 7, lines 42-52: IPv6 (anycast) communications, OSPF protocol; col. 12, lines 50-54, col. 8, lines 52-53: utilizing (open) shortest path protocol)

Regarding Claims 11, 30, McCanne discloses the method, apparatus according to claims 1, 19, further comprising: sending an advertisement message with a route cost value suitable for the current situation in the server. (see McCanne col. 18, lines 39-41; col. 19, lines 45-48: cost factor utilized in routing determination)

Regarding Claims 12, 31, McCanne discloses the method, apparatus according to claims 11, 30, further comprising increasing the route cost value if the server providing service is getting congested. (see McCanne col. 18, lines 39-41; col. 18, lines 45-48: server congestion increased, cost factor utilized to determine server(s), look to more distant servers (increase route cost) to offload services)

Regarding Claims 13, 32, McCanne discloses the method, apparatus according to claims 11, 30, further comprising decreasing the route cost value if the server providing

service has capacity for new service queries. (see McCanne col. 18, lines 39-41; col. 18, lines 45-48: server congestion reduced, cost factor utilized to determine server to offload services)

Regarding Claims 14, 33, McCanne discloses the method, apparatus according to claims 1, 19, wherein the advertising message is an Open Shortest Path First version 6 Link State Advertisement message. (see McCanne col. 5, lines 21-25: col. 7, lines 42-52: IPv6 (anycast) communications; col. 7, lines 34-40: advertisement messages (IPv6 communications); col. 12, lines 50-54, col. 8, lines 52-53: utilizing (open) shortest path protocol)

Regarding Claim 16, McCanne discloses the method according to claim 1, further comprising: sending an advertisement message with service load information. (see McCanne col. 12, lines 48-50; col. 12, lines 55-57: advertisement, load balance information)

Regarding Claim 17, McCanne discloses the method according to claim 1, further comprising delivering the service load information of the server with a separate protocol. (see McCanne col. 18, line 64 - col. 19, line 8; col. 19, lines 11-13: delivery server load information, from information database, different protocol and procedure)

Regarding Claim 18, McCanne discloses the method according to claim 1, wherein the

service is domain name system service. (see McCanne col. 9, lines 33-42; col. 9, line 61 - col. 10, line 2: DNS (naming service) utilized in service provisioning)

Regarding Claim 19, McCanne discloses an apparatus, comprising:

a) a service process configured to provide service on a communication link via which the server is adapter to receive messages from a router or other servers; (see McCanne col. 3, lines 45-54: provide a service; col. 19, lines 27-34: messaging between servers and routers)

b) a service-specific anycast address configured to a server interface on the communication link; (see McCanne col. 5, lines 21-25; col. 5, lines 58-60: anycast (IPv6) address; col. 7, lines 34-40: service advertisement)

c) monitoring means for monitoring said service process and the service-specific anycast address configured interface; (see McCanne col. 6, lines 8-15: monitoring service processing)

e) sending means for sending an advertisement message when the service process is able to provide the service via the communication link to all other servers in response to the scheduling of the service scheduling means. (see McCanne col. 7, lines 34-40: server advertisement, available service(s))

McCanne discloses wherein a need for an advertisement message, wherein configured to take into account in determining the need for an advertisement message advertisement messages received to the service-specific anycast address

from other server. (see McCanne col. 7, lines 34-40: advertisement message(s) from server) McCanne does not specifically disclose scheduling the service process.

However, McCanne2 discloses:

d) wherein the service scheduling means (see McCanne2 col. 13, lines 59-62: client request; col. 16, lines 22-27: service request scheduling)

It would have been obvious to one of ordinary skill in the art to modify McCanne as taught by McCanne2 to enable the capability for scheduling service processes. One of ordinary skill in the art would have been motivated to employ the teachings of McCanne2 in order to enable the capability to provide flexible bandwidth management and diagnostic tools to network managers and make use of existing, widely deployed communication protocols and procedures to achieve efficient transfer of information. (see McCanne2 col. 2, lines 27-36)

Regarding Claim 21, McCanne discloses the apparatus to claim 19 further comprising, means for enclosing service load information in the advertisement message. (see McCanne col. 12, lines 48-50; col. 12, lines 55-57: routine message, load balance information transferred between routers)

Regarding Claim 22, McCanne discloses the apparatus to claim 19, wherein the service in the server is the domain name system service. (see McCanne col. 9, lines 33-42; col. 9, line 61 - col. 10, line 2: DNS naming service utilize in service provisioning)

Regarding Claims 34, 35, McCanne discloses a computer program embodied on a computer readable medium, the computer readable medium storing code comprising computer executable instructions, and a server comprising:

a) providing a service with a service process in a server; (see McCanne col. 3, lines 45-54; col. 19, lines 27-34: service providing server)

b) configuring a service-specific anycast address to a server interface on a communication link via which the server receives messages from a router or other servers; (see McCanne col. 4, lines 59-66: network layer load balance, services providing; col. 5, lines 21-25; col. 5, lines 58-60: anycast communications protocol (IPv6); col. 5, lines 7-10: server farm (cluster), process services based on load; col. 3, lines 45-54: servers provides messaging between servers)

c) monitoring the service process and the service-specific anycast address configured interface; (see McCanne col. 6, lines 8-10; col. 6, lines 25-26; col. 12, lines 9-15: monitoring service processing of services)

e) sending an advertisement message when the service process is able to provide the service via the communication link to all other servers in response to the scheduling. (see McCanne col. 7, lines 34-40: server advertisement, available service(s))

McCanne discloses the need for an advertisement message, wherein configured to take advertisement messages received to the service-specific anycast address from other servers into account in determining the need for an advertisement message. (see McCanne col. 7, lines 34-40: advertisement message(s) from server) McCanne does not specifically disclose scheduling the service process.

However, McCanne2 discloses:

d) scheduling the service process; (see McCanne2 col. 13, lines 59-62: client request; col. 16, lines 22-27: service request scheduling)

It would have been obvious to one of ordinary skill in the art to modify McCanne as taught by McCanne2 to enable the capability for scheduling service processes. One of ordinary skill in the art would have been motivated to employ the teachings of McCanne2 in order to enable the capability to provide flexible bandwidth management and diagnostic tools to network managers and make use of existing, widely deployed communication protocols and procedures to achieve efficient transfer of information. (see McCanne2 col. 2, lines 27-36)

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kyung H. Shin whose telephone number is (571) 272-3920. The examiner can normally be reached on 9:30 am - 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Wiley can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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January 13, 2008

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